Baehyun Min, PhD

Professor of Climate and Energy Systems Engineering

Ewha Womans University · Seoul, Republic of Korea

bhmin01@ewha.ac.kr +82 2 3277 6946 energy.ewha.ac.kr

Research interests

Reservoir characterization, enhanced oil recovery and production optimization. Carbon capture, utilization and storage (CCUS), underground hydrogen production and storage, and climate and ESG risk modeling, including public acceptance of the energy transition.

Methods include top-down modeling, data analytics, data assimilation, uncertainty quantification and evolutionary optimization.

Academic appointments

Ewha Womans University

Mar 2026–present	Professor, Department of Climate and Energy Systems Engineering
Mar 2021–Feb 2026	Associate Professor, Department of Climate and Energy Systems Engineering
Mar 2017–Feb 2021	Assistant Professor, Department of Climate and Energy Systems Engineering
Sep 2019–present	Adjunct Professor, Interdisciplinary Program in Social Economy
Aug 2021–Jul 2023	Associate Dean, HOKMA College of General Education
Aug 2023–Jul 2024	Head, Department of Climate and Energy Systems Engineering (also Aug 2020–Aug 2021)

Research experience

The University of Texas at Austin · Austin, Texas, USA

2016–Feb 2017 Research Associate, Center for Subsurface Modeling, with Mary F. Wheeler

Coupled flow and geomechanics with global and multiobjective optimization to model CO_2 leakage and assess ways to prevent it.

Jan 2014–Aug 2016 Postdoctoral Fellow, Center for Petroleum and Geosystems Engineering

With Sanjay Srinivasan, extended model selection using Pareto optimization and combined a semi-analytical heavy-oil thermal injection model with evolutionary optimization to quantify uncertainty.

Seoul National University · Seoul, Republic of Korea

Jun 2013–Jan 2014	Research Associate, Research Institute of Energy and Resources, with Joe M. Kang
Jun 2010–May 2013	Researcher, Research Institute of Energy and Resources

Developed reservoir management software for history matching and production optimization. Matched production histories from Athabasca heavy-oil and oil sands reservoirs and combined neural networks with evolutionary algorithms to optimize well placement and gas production.

Education

Seoul National University

Feb 2013	PhD, Energy Systems Engineering (petroleum engineering) · GPA 4.05/4.30
Feb 2007	MS, Civil, Urban, and Geosystems Engineering · GPA 4.12/4.30
Feb 2005	BS, Civil, Urban, and Geosystems Engineering, summa cum laude · GPA 4.01/4.30

Research output

Publications and presentations. 76 journal publications and 134 conference papers, talks and posters as of November 2026.

Book. Coauthor of 2050 Hydrogen Energy (2021).

Software and patents. Seoul National University Integrated Reservoir Management System, software for history matching oil and gas fields (2015). Four Korean patents on optimization algorithms.

Awards and research support

Nov 2025	Early Career Award, Korean Society of Petroleum Engineers (KSPE)
Nov 2025	Distinguished Paper Award, Korean Society of Mineral and Energy Resources Engineers (KSMER)
Mar 2024	Early-Career Ewha Fellow, Ewha Womans University
May 2022	16th Early Career Engineer Award, KSMER
Mar 2022	Research Excellence Faculty Award, Ewha Womans University
Oct 2021	Technical Reviewer Outstanding Service Award, Society of Petroleum Engineers (SPE)
Nov 2019	Outstanding Paper Award, KSMER
Sep 2016	Basic Science Research Program, National Research Foundation of Korea (2016012796)
Aug 2008	Outstanding Paper Award, Symposium of Overseas Energy and Mineral Resources Development, Korea

Professional service and affiliations

Oct 2026–present	Adviser on long-term climate and energy technologies, Korea Institute of Energy Technology Evaluation and Planning
Jan 2026–present	Executive board member for general affairs, KSMER
Oct 2025–present	Executive Committee member, IEA Greenhouse Gas R&D Programme (IEAGHG)
Jan 2023–present	Editor-in-Chief, KSPE
Feb 2020–present	Officer, SPE Korea Section
2020–2021	Director, Korean Institute of Gas

Life memberships. KSMER (2017), KSPE (2019) and International Association for Mathematical Geosciences (2019).

Memberships. SPE (2005), American Geophysical Union (2015), Society for Industrial and Applied Mathematics (2015) and Korean Institute of Gas (2018).

Technical skills

Expert user of CMG IMEX, GEM and STARS, and SLB MEPO and ECLIPSE. Proficient in SLB Petrel, Stanford Geostatistical Modeling Software (SGeMS), C/C++ and MATLAB.

Peer review

SPE Reservoir Evaluation & Engineering, Computational Geosciences, Computers & Fluids, Energy Exploration & Exploitation, Journal of Petroleum Science and Engineering, Mathematical Geosciences, Petroleum, Energies, Water, Sustainability, and Colloids and Interfaces. Conference reviewer for the International Conference on Ocean, Offshore and Arctic Engineering.